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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Manfred T. Reetz

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EXAMINER

METZMAIER, DANIEL S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

01/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/831,566

Applicant(s)

REETZ ET AL.

Examiner

Daniel S. Metzmaier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims 21-52 are pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 31 October 2007 has been entered.

Claim interpretation

2. The term colloid has not been specifically defined in the specification and therefore takes the plain meaning in the art. Colloid is generally understood to be a system having a dimension of less than one micron. It is noted that claim 21 contains a stabilizer and that claim 27 does not contain a separation step. Although, it is further noted that each of the examples sets forth a colloid powder.

Claims must be given their broadest reasonable interpretation consistent with the specification, during patent examination.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. Claims 21-39, 41, 44-48 and 51-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants have amended the claims to recite a composition "comprising predominately metal oxide colloid" or "comprising predominately monometal oxide colloid . . .". While it is agreed that the original specification does not provide *ipsis verbis* basis for said language, it is not agreed that applicants original specification has basis for said limitations.

Applicants set forth that:

Webster's New Collegiate Dictionary, 1973, defines "predominate," in the only applicable definition for the term, as "to hold advantage in numbers or quantity." Thus, a person having ordinary skill in the art would understand that a composition that comprises predominately metal oxide colloids" is mainly composed of such metal oxide colloids, and such colloids are not a small, insignificant portion of the composition.

An attempt to interpret the claims to determine the range that the new term "predominately" impart clearly shows that applicants had nowhere in the original specification the concept of the range wherein the metal oxides are "to hold advantage in numbers or quantity". Applicants direct attention to the examples but said examples do not set forth ranges that would be included by the term "predominately" to include greater than 50 % as a binary combination, greater than the other components in a tertiary or higher combination.

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The examiner is unable to find basis for the breadth as characterized and denoted by applicants' remarks. In conclusion, the limitations "comprising predominately metal oxide colloid" or "comprising predominately monometal oxide colloid . . .". are deemed to be new matter.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 21-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 21-39, 41, 44-48 and 51-52, it is unclear what are the metes and bounds of the limitations "comprising predominately metal oxide colloid" or "comprising predominately monometal oxide colloid . . .". It is unclear what said implied range by the use of the term 'predominately' is based, *i.e.*, weight, molar, and/or volume.

Claims 21, 27, 38, 40 and 42 set forth that the oxide colloids are "redispersible in a solution consisting of water". The phrase, "consisting of", is closed language and thus excludes any unspecified materials or elements. A solution is defined as a solute dissolved in a solvent, Which is at least a binary combination. It is unclear what unspecified materials make up the solution as set forth in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 21, 23-24, 26-27, 29-30, 32-35, 37, 46-47 and 51 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Moumen et al, "New Synthesis of Cobalt Ferrite Particles in the range of 2-5 nm: Comparison of the Magnetic Properties of the Nanosized Particles in Dispersed Fluid or in Powder Form", Chemical Materials, 1996, 8, pages 1128-1134. See the abstract and page 1129, Experimental Synthesis. Absent a teaching to the contrary, it is logical to

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conclude the methods of Moumen et al are performed at room temperature, which includes about 20° to 25° C (see instant claim 35).

See Moumen et al (page 1131 VI Comparison of the magnetic Behavior of Nanosized Particles Dispersed in an Aqueous Fluid and in Powder Form) for the water solution re-dispersibility.

To the extent the Moumen et al reference differs from the claims in that the colloids are redispersible in a solution consisting of water, applicants have not shown said limitation of a physical property of the claimed compositions that are the same or substantially the same compositions would not be redispersible in water. A compound and all of its properties are generally inseparable. *In re Papsech*, 315 F2d. 381, 137 USPQ 43, (CCPA 1963).

Furthermore, attention is directed to section V on page 1130 of Moumen et al, which discloses the formation of a redispersed nanoparticles made with $\text{CH}_3\text{NH}_3\text{OH}$ and $\text{Co}(\text{DS})_2$ and $\text{Fe}(\text{DS})_2$, wherein DS is dodecyl sulfate. The nanoparticles are redispersed by removing the supernatant and redispersing in pure bulk aqueous phase to obtain a suspension.

11. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moumen et al, "New Synthesis of Cobalt Ferrite Particles in the range of 2-5 nm: Comparison of the Magnetic Properties of the Nanosized Particles in Dispersed Fluid or in Powder Form", Chemical Materials, 1996, 8, pages 1128-1134. See the abstract and page 1129, Experimental Synthesis.

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12. While Moumen et al may not conduct their process at a temperature between 50 and 90° C, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to perform the process of Moumen et al at a high temperature to increase the rate of hydrolysis and/or condensation. It is well settled that the choice of a suitable or optimum temperature, absent a showing of criticality, is within the ordinary skill level of those skilled in the art.

13. Claims 21-24, 26-30, 32-35, 37-39, 41 and 46-48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bonnemann et al, WO 96/17685. See examples 5, 6, and 8-10. Since the claims define the colloid rather than a colloid powder and without separation, it is reasonable to conclude that the oxide is inherent to the Bonnemann et al process as an intermediate for subsequent processing. It is clear said oxide is formed otherwise there would exist nothing to be reduced in the reduction step of streaming H₂ for 3 or 4 hours.

Attention is specifically directed to applicants' step (b) of claim 38, which reduces the metal oxides. Furthermore, attention is directed to the Tables of Bonnemann et al and particularly example 17, denoted at page 11 as performed in air.

To the extent Bonnemann et al reference differs from the claims in the concentration of the metal oxides in the colloids claimed as a composition comprising predominately metal oxide, applicants have not shown said concentration limitation to distinguish the claims.

14. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bonnemann et al, WO 96/17685, as applied to claim 21-24, 26-30, 32-35, 37-39 and 41

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above, and further in view of Day et al, US 4,197,187. See Bonnemann et al, examples 5, 6, and 8-10.

To the extent Bonnemann et al differs from claim 44 in the incorporating the metallic colloids into sol-gel supports, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention was made to employ a sol-gel alumina of the Day et al reference (example) as a support in the process of Bonnemann et al rather than the carbon support for the advantages pointed out in the Day et al reference (column 4, lines 46-88), i.e., better selectivity and improved yields in hydrocarbon conversion. Bonnemann et al (page 6, lines 6-11) clearly contemplates the use of metal oxide carriers. Please compare and contrast with instant page 7, last full paragraph description of supports.

Double Patenting

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. Claims 21-24, 26-30, 32-35, 37-39 and 41 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6,090,746. Although the conflicting claims are not identical, they are not patentably distinct from each other because the breath of the instant claims encompasses the patented claims and the colloids inherently would be present in the 6,090,746, processes.

Allowable Subject Matter

17. Claims 40, 42, 43, 49 and 50 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Response to Arguments

18. Applicant's arguments filed 31 October 2007 have been fully considered but they are not persuasive.

19. Applicants (pages 14 and 15 of the above noted response) assert basis for the claim amendments and the interpretation of the language, a composition "comprising predominately metal oxide colloid" or "comprising predominately monometal oxide colloid . . .". This has been addressed in the above rejections under 35 USC § 112.

20. Applicants (page 16) assert Moumen et al lacks a disclosure that the Moumen et al materials are redispersible in a solution consisting of water. Applicants further direct

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attention to Moumen, *J. Phys. Chem.*, 100: pp. 1867-1873 (1996), wherein it is argued that the use of a 50% solution of ethylene glycol in water to prevent agglomeration.

Initially, applicants' limitation to a solution consisting of water does not exclude the ethylene glycol since a solution would require additional solute. Please see above rejection under 35 USC § 112, second paragraph.

Furthermore, applicants appear to be equating redispersibility with agglomeration prevention. Applicants have not shown that the particles of the Moumen et al reference redispersed in water would agglomerate to the degree that it would prevent redispersibility. While the additional reference cited by applicants teaches that the mixed solvent mitigate agglomeration, it does not exclude redispersibility in water. The claims do not distinguish the redispersibility.

Lastly, there is no evidence of record to show the compositions of Moumen et al, when added to an unspecified amount of water, would not be dispersed. As pointed out previously, in colloid chemistry, "Colloidal compositions are generally dispersible in a substance that makes up their external phase. To the extent applicants intend powders, the claims should so state." See page 4, lines 10-12 of Office Action mailed March 21, 2006. Applicants do not contest said generally accepted characteristic.

21. Applicants (pages 17 and 18) assert the Bonnemann et al reference does not disclose the formation of "a composition predominately metal oxide colloids" and that the Bonnemann et al reference discloses the reduction of metal salt solutions rather than the formation of a metal oxide colloid as claimed. This has not been deemed persuasive for the following reasons:

A review of applicants claims will show that (taking the independent claims) the concentration of the metal oxide in the colloid is defined as predominately but said limitation is indefinite and applicants have not shown said reference process to exclude said claimed materials. Furthermore, the claims employ open transitional language, i.e., "comprising", which would not exclude the further presence of metal salts. A review of the process claims show the formation of the metal oxide from the addition of a base to the metal salt solution.

A further review of the Bonnemann et al reference (examples, particularly at least example 5) is the formation of an aqueous solution of PtCl_2 with the further addition of a base, i.e., Li_2CO_3 , followed by addition H_2 . Since the compositions are made by the same process, it would be reasonable to conclude metal oxides are formed. These metal oxides are then reduced by the addition of the H_2 . Applicants have provided no evidence to refute the Offices' premise and/or conclusions. A holding of inherency may be based on scientific reasoning and does not require the claimed limitations *ipso verba*.

Applicants (page 17) assert it is the metal salt rather than the metal oxide, which is reduced, said reduction leading to the reduced metal colloid rather than the metal oxide colloid. While metal salt can be reduced, the formation of oxides would have been expected in the Bonnemann et al reference as well by the reaction of the salt in solution with a base followed by the reduction of any oxides formed therein.

22. Applicants (page 17) assert the rejection of claim 36 as obvious over Moumen et al reference should be withdrawn in view of the arguments presented in response to the

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anticipation rejection. This has not been deemed persuasive and said arguments have been addressed above.

23. Applicants (page 18) assert the rejection of claim 44 as obvious over Bonnemann et al reference should be withdrawn in view of the arguments presented in response to the anticipation rejection. This has not been deemed persuasive and said arguments have been addressed above.

24. Applicants (page 18) assert the Obviousness Double Patenting rejection as obvious over Bonnemann et al reference should be withdrawn in view of the arguments presented in response to the anticipation rejection. This has not been deemed persuasive and said arguments have been addressed above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel S. Metzmaier
Primary Examiner
Art Unit 1796

DSM